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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/730,836

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Sang In Kim

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02/11/2005

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

09/730,836

Applicant(s)

KIM ET AL.

Examiner

Thoi V Duong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 January 2005.  
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1,2,4-6 and 8-20 is/are rejected.  
 7) ☒ Claim(s) 7 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This office action is in response to the Amendment After Final Office Action filed January 21, 2005.

Accordingly, claims 1 and 9 were amended, and claim 3 was cancelled.

Currently, claims 1, 2 and 4-20 are pending in this application.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1 and 9 have been considered but are moot in view of the new ground(s) of rejection. Therefore, the last final office action is withdrawn.

3. The indicated allowability of claim 2 is withdrawn in view of the newly discovered reference(s) to Kim (USPN 6,060,130). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4-6, and 8-20 are rejected under 35 U.S.C. 103(a) as being obvious over Kim et al. (USPN 6,038,008) in view of Kim (USPN 6,060,130).

The applied references have a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the references, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome

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by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Re claims 1, 8, 9 and 11-15, as shown in Figs. 7A-7H, Kim et al. discloses a method of fabricating a liquid crystal display (LCD) having a thin film transistor with a gate electrode 117a, a gate insulating film 123, an active layer 122, an ohmic contact layer 125, a source electrode 115a, and a drain electrode 115b on a transparent substrate 111, said method comprising:

forming an organic passivation layer 126 over the transparent substrate and over the thin film transistor (Fig. 7F and col. 4, line 60 through col. 5, line 2);

defining a contact hole 131 through the organic passivation layer to expose the drain electrode (Fig. 7F and col. 5, lines 3-8);

irradiating the organic passivation layer 126 with ultraviolet (UV) rays having high-energy (low wavelength) to form a buffer layer with roughened surface (Fig. 7G and col. 7, lines 8-10 and 25-29); and

forming a transparent pixel electrode (ITO) 104 (col. 4, lines 14-16) over the rough buffer layer and in the contact hole such that the pixel electrode contacts the drain electrode via the contact hole and such that the pixel electrode adheres to the buffer layer.

Re claims 2, 10, 16-18 and 20, Kim discloses that the organic passivation layer is comprised of an acrylic organic compound, or benzocyclobutene (BCB), or perfluorocyclobutane (PFCB) (col. 4, lines 60-67; col. 5, lines 1-2), which has a hydrophobic property and a low dielectric constant (col. 5, lines 65-67).

Re claims 4-6 and 19, Kim further discloses that the UV treating method is performed at the surface of the passivation layer which is substantially exposed to an atmosphere pressure as a normal processing pressure (col. 8, lines 7-11) to create a buffer layer with roughened surface for increasing adhesion to an ITO layer (col. 7, lines 25-29 and 45-47). Accordingly, the buffer layer is an oxide and inherently has a hydrophilic property and hence, the surface property of the organic passivation layer is changed by the UV treating method.

Kim et al. discloses all aspects of the instant invention except that Kim et al. does not disclose the range of the low-wavelength of UV rays, which is between about 100 nm and about 200 nm.

Kim discloses a method for forming an organic passivation layer for electrodes of a thin film transistor in a LCD by irradiating UV light onto the organic passivation layer, wherein the UV light has a wavelength less than 210 nm so that the energy of the incident UV light, which is irradiated on the organic passivation layer, is larger than the bonding energy of molecules of the layer to decompose the bonds of molecules and generate corresponding radicals (col. 3, lines 19-24; col. 4, lines 43-47).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of fabricating an LCD of Kim et al. with the teaching of Kim by using ultraviolet rays having wavelengths less than 210 nm on the organic passivation layer so as to obtain enough energy to destroy the molecular bonds and generate corresponding radical (col. 4, lines 27-47).

### ***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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7. Claims 1, 2, 4-6 and 8-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, 15-17 of Kim et al. (USPN 6,038,008) in view of Kim (USPN 6,060,130).

The subject matter claimed in the instant application is fully disclosed in the Kim et al.'s patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: the organic passivation layer is comprised of an acrylic organic compound, or benzocyclobutene (BCB), or perfluorocyclobutane (PFCB) which has a hydrophobic property and a low dielectric constant. When the organic passivation layer is irradiated with UV rays, the surface property of the organic passivation layer is changed to become a roughened buffer layer. This buffer layer is an oxide and inherently has a hydrophilic property.

Kim et al. discloses all aspects of the instant invention except that Kim et al. does not disclose the range of the low-wavelength of UV rays, which is between about 100 nm and about 200 nm.

Kim discloses a method for forming an organic passivation layer for electrodes of a thin film transistor in a LCD by irradiating UV light onto the organic passivation layer, wherein the UV light has a wavelength less than 210 nm so that the energy of the incident UV light, which is irradiated on the organic passivation layer, is larger than the bonding energy of molecules of the layer to decompose the bonds of molecules and generate corresponding radicals (col. 3, lines 19-24; col. 4, lines 43-47).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of fabricating an LCD of Kim et al.

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with the teaching of Kim by using ultraviolet rays having wavelengths less than 210 nm on the organic passivation layer so as to obtain enough energy to destroy the molecular bonds and generate corresponding radical (col. 4, lines 27-47).

***Allowable Subject Matter***

8. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

In addition to other elements as shown, none of the prior art of record suggests or discloses alone or in combination that the step of irradiating the organic passivation layer produces a buffer thickness of 10A to 50A.

The most revelant reference, USPN 6,038,008 of Kim et al., fails to disclose a buffer thickness of 10A to 50A. The Kim et al.'s reference only discloses a UV treating method using high-energy (low-wavelength) radiation on the organic passivation layer to create a roughened buffer layer for increasing adhesion to an ITO layer.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



02/07/2005



DUNG T. NGUYEN  
PRIMARY EX